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Structural Priming in Agrammatic Aphasia

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Introduction

Structural priming refers to the tendency for speakers to reuse sentence structures they used previously (Bock, 1986). For example, speakers tend to produce double object (DO) rather than prepositional object (PO) structures, as in (1) – (2), after producing DO sentences. Lasting structural priming effects also have been found in healthy speakers, sustained for up to ten intervening sentences between prime and target trials (Bock & Griffin, 2000), which has been considered evidence of implicit learning of abstract linguistic representations (Chang et al., 2006). Studies using the priming paradigm with agrammatic speakers show marked priming effects, improving production of sentences that are difficult for them (Hartsuiker & Kolk, 1998). However, it is not clear if and how long priming lasts in agrammatic speakers. Using sentences with three-arguments that are difficult for agrammatic speakers (Thompson et al., 1997), this study examined the duration of priming by manipulating the distance between prime and target trials.

Methods

Thirteen healthy and thirteen agrammatic individuals participated in the study. Participants repeated either DO or PO primes, as in (1) – (2) and produced target sentences using a sentence elicitation task with written words. Between prime and target trials, participants read either two or four intervening sentences (lag 2 vs. lag 4), as in (3) – (4). The dependent variable was the proportion of DO responses, calculated as the number of DO responses divided by the total number of DO and PO responses in each condition.

1. The lawyer is brining the partner the document. (DO condition)

2. The lawyer is brining the document to the partner. (PO condition)

3. The tiny puppy is barking. (Lag)

4. The sitting translator is lazy. (Lag)

Results and Discussion

The control participants produced a significantly higher rate of DO responses following DO compared to PO primes at both lags; in addition, priming effects between the two lags did not differ significantly (Figure 1a). Despite a low rate of DO responses across conditions, the same pattern was found for the agrammatic participants (Figure 1b). Importantly, the magnitude of priming, i.e., the difference in the rate of DO responses between the DO and PO conditions, was not significantly different between the two groups (p's > .1) (Figure 1c). These findings indicate that structural priming effects in agrammatic speakers are long lasting, as in healthy speakers, reflecting their implicit

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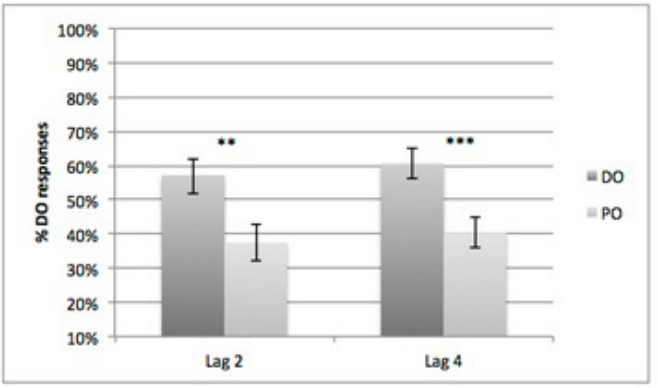
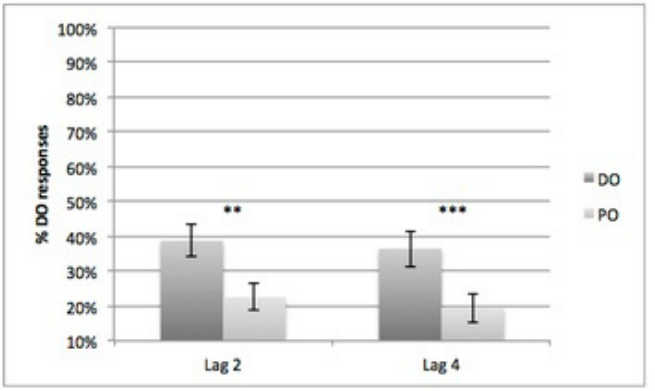
learning ability. These findings hold promise for using structural priming as a strategy for improving sentence production.

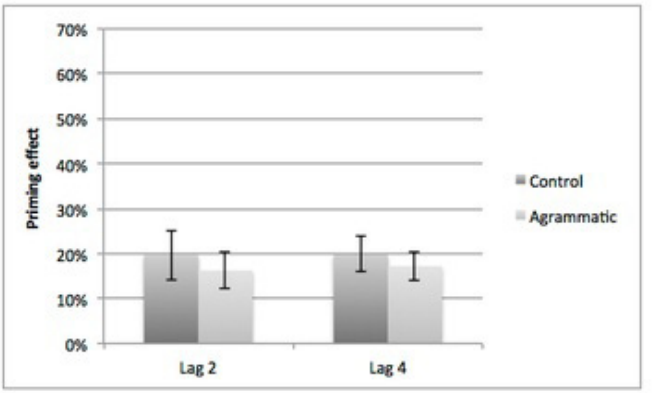
Figure 1. Mean percentage of DO responses by prime type (** $p < .01$, *** $p < .001$)
(a) Control participants



(b) Agrammatic participants



(c) Magnitude of priming by participant group



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